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II. The second paper considers the two theories to explain the tendency of cuttings to produce roots near the *basal* end,* and buds near the *apical* end. Vochting ("Organbildung im Pflanzenreich," Bonn, 1878) believes this tendency to be innate, and growth-inherited. Sachs, in a late paper (Arbeiten des bot. Inst. Wurzburg, 1880, p. 452) opposes the theory of Vochting *in toto* and conceives that Vochting's morphological force is really a tendency impressed upon the forming cells by the action of external agencies, especially that of gravity.

Darwin observed carefully the rooting of the species of the sterile shoots of brambles growing on steep banks. In such positions the majority of the branches grow immediately downward or straggle out horizontally and then turn downward. But some grow uphill, yet he finds the tips of many of these branches, indifferent as to position, taking root. The gravitation impulse therefore seems not to be applicable to such a case. Mr. Darwin then proceeds to show that it is better for the plant that the morphological growth-impulse should determine the formation of roots at the tip than that root formation should depend on the guiding force of gravity. Injury is most likely to occur at the end of the branch. The new shoot that is to be produced to perform the function of the original branch will have the best chance of success if it starts from the point reached by that branch before the injury; therefore the growth of the bud nearest the apex is the most advantageous for the plant.

It must be remarked that some of the conclusions drawn, if Mr. Darwin is correctly reported by *Nature*, do not seem warranted by the result of the experiments, but it would be hardly just to criticise a paper from a mere abstract.—C. R. B.

PERONOSPORA VILICOLA, DeBary. — American grape vines having been introduced into Europe, with the expectation that they would better withstand the attacks of *Phylloxera*, have carried this parasite with them, and within two years it has spread over all the vine growing countries.

It was first found in Hungary in 1877; in 1878 in South-western France; in 1879 it occurred in a number of provinces, and in 1880, everywhere, doing immense damage. In 1879 it was discovered in Italy and Switzerland, and in 1880 in Tyrol, Steyermark and Lower Austria. *Vide Hedwigia*. — E. W. HOLWAY.

A NEW GRASS. — While on a botanical trip with my friend H. N. Mertz around Lake Chautauqua, N. Y., last summer, we found on a road at Fairpoint upon the "Association grounds" a grass which puzzled us considerably. It was an annual with tufted, linear root leaves 4-5 inches long; slender, leafy culm 15-18 inches high, ending in a narrow spike about two inches long, consisting of numerous 5-6 flowered spikelets each enclosed *within two ovate pinnately-divided bracts (glumes?)*.

*That end originally nearest the body of the parent plant.

Satisfied that this must be a recently introduced grass I sent a specimen to Dr. Geo. Thurber who considers it an important find. It is *Cynosurus cristatus*, Linn., the "crested dog tail grass," rather common in Europe, but heretofore not reported in the U. S.

Botanists who visit Chautauqua this year are requested to be on the lookout for this grass in order to ascertain whether it can hold its own and can be considered as thoroughly established.—G. GUTTENBERG.

PODOPHYLLUM PELTATUM.—I believe the May-apple is exclusively a native of North America, but it is found in great profusion from the northern to the southern boundaries of the United States. Now it is precisely because this plant is so very common that nothing is said of its beauty or virtues. Why it has been given the name of May-apple would be difficult to conjecture, as it rarely blooms before June, but occasionally I have found it blooming about the end of May. It delights in moist, rich soil, and is always most luxuriant in damp, shady woods. Its fruit is never ripe until the latter part of September, and indeed the plant is propagated so abundantly by the creeping of its roots, that Dr. Barton says only a small proportion of its flowers produce fruit. What the cause of it is I do not pretend to know, but the fact remains the same, that while I am well acquainted with the flowers of this plant, I have never seen the fruit more than once or twice. In May 1879, I noticed large patches of its light green leaves above, and pale beneath, supported on yellowish green stems about a foot high. Later on when the plants are in flower, the drooping habit of these blossoms found in the fork that the junction of the petioles makes, gives to the whole bed an elegant appearance. The number of its white petals varies from six to nine, and they are thickly laced with vein. The pistil is of a yellowish color, and crowned by a stigma much darker. The stamens vary from thirteen to twenty, and are yellow. The fruit that I have seen was small and about the color of a half ripe lemon, but Dr. Barton says, 'the size varies according to the different situations the plant may have been grown in, and when mature is lemon yellow slightly maculated with round brownish dots.'

The proper time for collecting the roots for medicinal purposes is after the leaves have fallen. Porcher says in his "Resources of the Southern Fields and Forests," that the pulp of the fruit when squeezed into a wine glass and with the addition of sugar and old Madeira, is said to be equal as a drink to the luscious golden granadilla of the tropics. Many people like the taste of the fruit when eaten, without other flavor than its own.—E. HUNTER, *Essex Co., Va.*

RECENT PERIODICALS.—*The American Naturalist* for January is strong in Botany. Mr. William Trelease has been studying the Fertilization of *Calamintha Nepeta* and finds it cross-fertilized by many insects, though capable of close fertilization in one or two unlikely